# MECHANICAL NOTES

- . THE CONTRACTOR SHALL FURNISH ALL LABOR, MATERIALS, AND EQUIPMENT NECESSARY FOR THE INSTALLATION OF A COMPLETE SYSTEM IN ACCORDANCE WITH THESE DRAWINGS, THE FLORIDA BUILDING CODE 2014 AND ALL OTHER APPLICABLE STATE, COUNTY AND LOCAL ORDINANCES AND THE LATEST EDITION OF THE FOLLOWING PUBLICATIONS; SMACNA-85, 95, 03, 05; ASHRAE 15-04, 34-10, 62-10; NFPA 70-11, 72-10, 90A-12, 90B-12, 91-10, 96-11, 101-12; ANSI Z10.1-98, Z10.3-98, Z21.8-94, Z21.83-98.
- 2. THE CONTRACTOR SHALL PAY ALL COSTS OF PERMIT, INSPECTIONS AND ALL OTHER COSTS INCIDENTAL TO THE COMPLETION AND TESTING OF THIS WORK.
- 3. THE CONTRACTOR SHALL VISIT THE SITE AND COORDINATE WORK WITH OTHER TRADES.
- 4. THE CONTRACTOR SHALL SUPPLY THE ARCHITECT/ENGINEER WITH "AS-BUILT" DRAWINGS.
- 5. CONTRACTOR SHALL SUBMIT, FOR APPROVAL FIVE [5] COPIES OF A COMPLETE SET OF SHOP DWGS, MANUFACTURER'S SUBMITTALS FOR EACH PIECE OF EQUIPMENT & CONTROLS INCLUDED IN CONTRACT.
- 6. ALL MATERIAL SHALL BE NEW OF U.S. MANUFACTURER OF GOOD QUALITY. ALL WORK SHALL BE PERFORMED AT INDUSTRY STANDARD QUALITY LEVEL BY CERTIFIED PROFESSIONALS. ALL EQUIPMENT SHALL BE UL OR ETL LISTED. ALL INSTALLATIONS SHALL COMPLY WITH FMC 2014. CH. 3. GENERAL REGULATIONS. BUILDINGS LOCATED WITHIN 3,000 FT FROM THE OCEAN SHALL UTILIZE NON-FERROUS MATERIALS FOR ALL OUTDOOR EXPOSED SUPPORTS, STANDS, FASTENERS, ETC.
- A. ALL AIR CONDITIONING DUCT WORK (SUPPLY AIR, RETURN AIR AND TRANSFER AIR DUCTS) ENCLOSED ABOVE CEILING SHALL BE OF 1" (R-4.2) STANDARD DUTY FOIL REINFORCED FIBERGLASS WITH MANUFACTURER'S LOGO PRINTED ON VAPOR BARRIER ALL FLEXIBLE DUCT TO BE R-4.2 WITH A MAX. TOTAL LENGTH NOT TO EXCEED 15 FT. INSTALL UL LISTED FOR PLENUM, FLEXIBLE DUCTWORK ELBOW SUPPORTS AT EACH DIFFUSER, GRILLE, AND REGISTER EQUAL TO "FLEXRIGHT" BY TITUS OR "FLEXFLOW ELBOW" AS MANUFACTURED BY "THERMAFLEX".

B. ALL AIR CONDITIONING DUCTWORK (SUPPLY & RETURN) EXPOSED TO AIR CONDITIONING SPACE, SHALL BE UNINSULATED SPIRAL NEW GALVANIZED SHEET METAL WITH SEALED SEAMS AND JOINTS.

- 8. ALL EXHAUST DUCTS AND OUTSIDE AIR DUCTS SHALL BE GALVANIZED SHEET METAL WITH SEALED SEAMS AND JOINTS. ALL OUTSIDE AIR DUCT SHALL BE INSULATED WITH EXTERNAL BLANKET INSULATION R-6 MIN. ALL METAL EXHAUST, MAKE-UP OR OTHERWISE DUCTS INSTALLED IN LOCATIONS WHERE DEWPOINT CONDITIONS CAN OCCUR INSIDE THE DUCT SHALL BE EXTERNALLY INSULATED WITH R-6 MIN. AIR INTAKE AND EXHAUST OPENINGS SHALL BE SCREENED WITH A CORROSION RESISTANT MATERIAL PER FMC 2014, TABLE 401.5.
- 9. O/A INTAKES SHALL NOT BE TAKEN FROM A LOCATION CLOSER THAN 10 FT FROM ANY CHIMNEY. VENT OUTLET OR SANITARY SEWER VENT OUTLET PER FMC 2014, SEC. 401.4.1. OUTSIDE AIR INTAKE VENTS LOCATED ON ROOFS WILL BE PROPERLY MARKED WITH A UNIVERSAL MARKING "INTAKE", PERMANENTLY ATTACHED.
- 10. DUCT SIZES SHOWN ARE INSIDE DIMENSIONS.
- 11. ALL AIR DEVICES (DIFFUSERS, REGISTERS AND GRILLES) SHALL BE ALL ALUMINUM CONSTRUCTION WITH EXPOSED SURFACE OFF WHITE BAKED ENAMEL FINISH OR AS SPECIFIED BY ARCHITECT. DEVICES SHALL BE AS SPECIFIED OR EQUAL TO TITUS OR METALAIRE, PROVIDE OPPOSED BLADE DAMPERS AT ALL DIFFUSERS AND REGISTERS AS INDICATED ON PLANS. PROVIDE BALANCING DAMPERS FOR ALL SUPPLY AND RETURN DIFFUSERS AND REGISTERS TO ENSURE COMPLIANCE AIR FLOW AND WITH FMC 2014 PAR.601.4 FOR BALANCED RETURN TRANSFER AIR FLOW.
- 12. TEMPERATURE CONTROLS/THERMOSTAT: CONTRACTOR SHALL PROVIDE A FULLY INTEGRATED BUILDING CONTROL SYSTEM.
- A. FOR NEW UNITS: SHALL BE COMBINATION COOLING/HEATING, WITH SYSTEM "COOL-AUTO-HEAT-OFF" AND FAN "ON-AUTO" SELECTOR SWITCHES. PROVIDE PROGRAMMABLE TYPE AS RECOMMENDED BY MANUFACTURER, HONEYWELL OR EQUAL. PROVIDE TAMPER PROOF COVERS.
- 13. THERMOSTAT LOCATION SHALL BE APPROVED BY OWNER AND ENGINEER BEFORE INSTALLATION. INSTALL THERMOSTAT PER A.D.A REQUIREMENTS WHERE APPLICABLE; MAX. 48" HIGH FOR FORWARD REACH, MAX. 54" HIGH FOR SIDE REACH. MECHANICAL CONTRACTOR SHALL COORDINATE WITH ELECTRICAL CONTRACTOR ALL REQUIREMENTS FOR JUNCTION BOXES. CONDUITS. CONTROL WIRING. POWER, ETC. AND DEFINE RESPONSIBILITIES AND SCOPE OF WORK FOR EACH TRADE PRIOR TO PURCHASING/INSTALLATION.

- WHENEVER THERE ARE MORE THAN ONE SENSOR OR THERMOSTAT, SIDE BY SIDE, THEY SHALL BE GANGED TOGETHER WITHIN THE SAME COVER PLATE WHEREVER POSSIBLE. CONTRACTOR SHALL COORDINATE THIS ISSUE WITH ARCHITECT/OWNER PRIOR TO INSTALLATION AND SHALL BRING ANY DISCREPANCY TO THE ENGINEER'S ATTENTION
- 14. REFRIGERANT LINES SHALL BE COPPER. TYPE "L" HARD DRAWN WITH WROUGHT COPPER BRAZING-JOINT TYPE FITTINGS, USE BRAZING MATERIALS FOR HIGH PRESSURE PIPING PER AWS A5.8: BCuP SERIES COPPER-PHOSPHORUS ALLOY OR BAq1 SILVER ALLOY. REFRIGERANT LINES SHALL BE SIZED PER MANUFACTURER'S RECOMMENDATIONS. SOFT COPPER TYPE "M" SHALL BE ALLOWED FOR RISER PIPING INSIDE CHASE TO LIMIT NUMBER OF JOINTS. COORDINATE WITH ENGINEER FOR PRIOR APPROVAL. ALL EXPOSED INSULATION SHALL BE PROTECTED WITH A PROTECTIVE, PUNCTURE AND TEAR RESISTANT JACKETING SYSTEM EQUAL TO "VENTURE CLAD".
- 15. "ARMAFLEX" OR EQUAL INSULATION SHALL BE USED FOR SUCTION REFRIGERANT LINES WITH THICKNESS PER FLORIDA ENERGY CODE TABLE C403.2.8. FILTER/DRYER AND SIGHT GLASS SHALL BE PROVIDED AT LIQUID LINES.
- 16. ALL BRANCH TAKE-OFFS TO BE PROVIDED W/ MANUAL VOLUME DAMPERS. PROVIDE RADIUS ELBOWS WHERE FEASIBLE, SQUARE ELBOWS AND TEE'S SHALL BE FURNISHED W/SINGLE FOIL TURNING VANES. PROVIDE MANUAL VOLUME DAMPERS WITH EXTRACTOR AT ALL FLEX TAKE-OFFS. PROVIDE REMOTE, CABLE OPERATED VOLUME DAMPERS IN INACCESSIBLE AND HARD CEILING AREAS, "YOUNG REGULATOR"
- 17. PROVIDE NEW FILTERS FOR ALL AIR CONDITIONING EQUIPMENT BEFORE START-UP, REPLACE PRIOR TO FINAL ACCEPTANCE BY OWNER.
- 18. PROVIDE SMOKE DETECTORS WITH SERVICE ACCESS DOORS IN ALL AIR DISTRIBUTION SYSTEMS WITH A DESIGN CAPACITY GREATER THAN 2000 CFM COMPLIANT WITH FMC 2014. SEC 606.2. FOR SMOKE DETECTORS NOT VISIBLE, IN CONCEALED SPACES, PROVIDE REMOTE ANNUNCIATION/TEST STATION AS REQUIRED BY AUTHORITY HAVING JURISDICTION, COORDINATE PRIOR TO INSTALLATION, DETECTORS SHALL BE BY ONE MANUFACTURER, COORDINATE VOLTAGE ETC. WITH ELECTRICAL CONTRACTOR AND FIRE ALARM SYSTEM BEFORE ORDERING. UPON DETECTION, SMOKE DETECTORS SHUT DOWN ASSOCIATED AIR MOVING EQUIPMENT AND ALL AIR MOVING EQUIPMENT SERVING THAT COMMON

ALL INSTALLED ELECTRICAL DEVICES, ACTUATORS, APPURTENANCES, AUXILIARY EQUIPMENT, ETC. REQUIRING ENVIRONMENTAL PROTECTION SHALL BE PROVIDED WITH ADEQUATE NEMA ENCLOSURES FOR THE CONDITIONS WHERE INSTALLED, WEATHER INDOORS OR OUTDOORS, EVEN IF NOT SPECIFICALLY INDICATED ON PLANS.

19. HVAC CONTRACTOR SHALL PROVIDE A T & B REPORT PER FEC 2014, SEC. C 408.2.2. FOR SYSTEMS OVER 15 TONS, THE T & B SHALL BE PERFORMED BY A CERTIFIED, INDEPENDENT COMPANY FOR ALL MECHANICAL EQUIPMENT, AIR DEVICES, DAMPERS, AND ANY AIR MOVING SYSTEMS. THE TEST AND BALANCE REPORT SHALL BE IN ACCORDANCE WITH THE AABC OR NEBB STANDARDS AND PROCEDURES AND SHALL INCLUDE AIR QUANTITIES FOR ALL SUPPLY GRILLES, RETURN GRILLES AND EXHAUST GRILLES AND THE LEAVING AND ENTERING AIR TEMPERATURE (F) FROM SUPPLY GRILLES, EVAPORATORS, ENERGY RECOVERY UNITS AND ANY TYPE OF HEAT EXCHANGERS. BUILDING ENVELOPE SHALL BE POSITIVELY PRESSURIZED TO PREVENT INFILTRATION PER FEC 2014, SEC. C 408.2.2.1.

- AS PART OF BID, CONTRACTOR SHALL INCLUDE COSTS NECESSARY TO MAKE ONE CHANGE IN EACH UNITS SHEAVE, BUSHINGS AND BELTS, BALANCING DAMPERS REQUIRED AND ANY OTHER DEVICES REQUIRED FOR THE CORRECT BALANCE OF THE SYSTEM AS REQUIRED BY THE TAB FIRM.
- 20. RUN INSULATED FIRE RATED CONDENSATE DRAINS AS REQUIRED. AUXILIARY DRAIN PANS SHALL BE INSTALLED UNDER ALL COILS ON WHICH CONDENSATION CAN OCCUR AND UNDER ALL UNITS IN CONCEALED SPACES OR ANY AREA WHERE BLDG. DAMAGE CAN OCCUR AS A RESULT OF AN OVERFLOW, TO COMPLY WITH FBC 2014, PAR. 307.2. AN ALTERNATE WATER-DETECTION LEVEL DEVICE TO SHUT DOWN THE EQUIPMENT IS ACCEPTABLE.
- 21. ALL INSULATION WILL HAVE FIRE/SMOKE RATING LESS THAN 25/50.
- 22. HVAC CONTRACTOR SHALL PROVIDE VENTILATION CONTROLS COMPLIANT WITH FMC 2014, SEC. 403.5-403.7 AND 405. FOR ALL SYSTEMS AND SHALL VERIFY EXISTING CONDITIONS FOR COMPLIANCE, AS REQUIRED, FOR A FULLY OPERATIONAL SYSTEM.
- 23. MECHANICAL EQUIPMENT ON ROOF OR ELEVATED STRUCTURES SHALL COMPLY WITH FMC 2014 PAR. 306.5 IF INSTALLED HIGHER THAN 16 FEET A.F.F. MECHANICAL EQUIPMENT INSTALLED IN ATTICS SHALL MEET THE REQUIREMENTS OF FMC 2014 PAR. 306.3 IF THE EQUIPMENT CAN NOT BE SERVICED/REMOVED THROUGH REQUIRED OPENING. MECHANICAL EQUIPMENT SHALL BE PROTECTED WITH MECHANICAL BARRIERS IF EXPOSED TO MECH. DAMAGE. ALL EQUIPMENT SHALL BE INSTALLED ON CONCRETE PADS AT GRADE LEVEL, SIZED PER STRUCTURAL PLANS.

## SPECIAL NOTE:

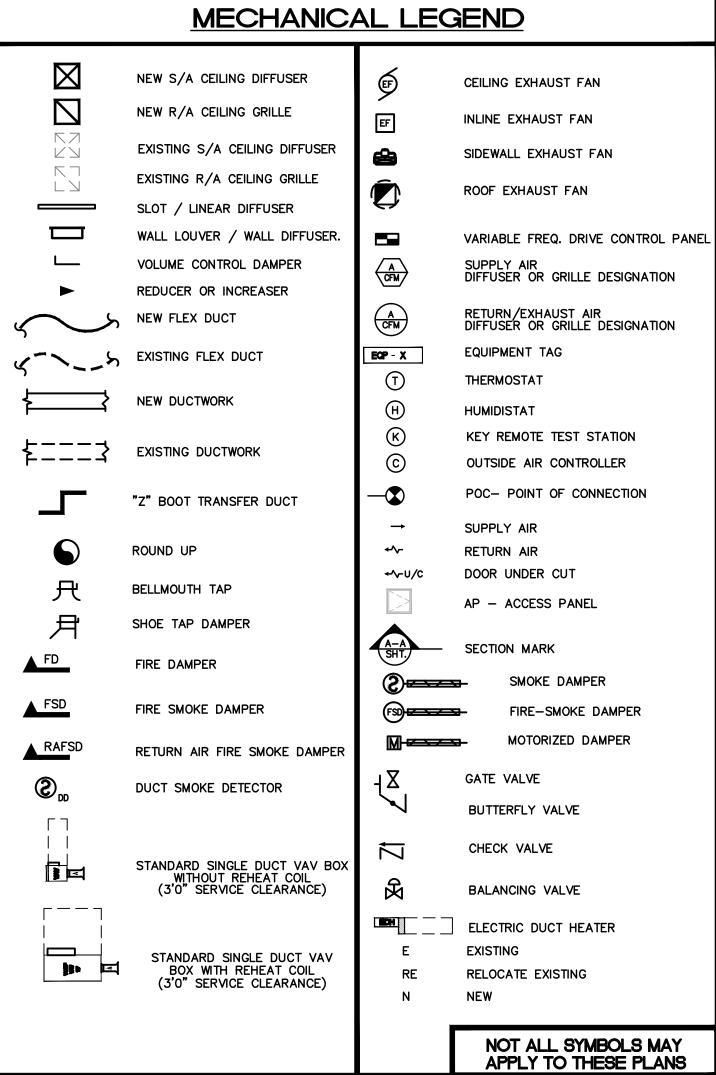
WITH SECTION C408.3.

- ALL WIND LOAD AND OTHER COMPLIANCE CALCULATIONS AND/OR INSTALLATION DETAILS FOR OUTDOOR MOUNTED MECHANICAL EQUIPMENT AS REQUIRED BY FBC 2014, SEC. 1509, 1522 AND CHAPTER 16, SHALL BE PROVIDED BY A STRUCTURAL ENGINEER AND ARE SHOWN ON THESE PLANS FOR REFERENCE ONLY. SUCH CALCULATIONS SHALL BE PROVIDED BY THE EQUIPMENT MANUFACTURER OR BY THE GENERAL OR MECHANICAL CONTRACTOR ON BEHALF OF CLIENT. CONTRACTOR TO PROVIDE WIND LOAD CALCULATIONS SIGNED AND SEALED BY A FLORIDA REGISTERED STRUCTURAL ENGINEER IN ORIGINAL FOR COMPLIANCE WITH SEC. 301.15 OF FMC 2014, INCLUDING ANY DOCUMENTATION REQUIRED BY LOCAL JURISDICTION FOR PERMIT PURPOSES.
- 24. PROVIDE A MIN. OF 36" CLEARANCE IN FRONT OF ALL 120-208/240 VOLT PANELS AND MIN. 42" CLEARANCE IN FRONT OF ANY 277-480 VOLT PANEL. PROVIDE ADEQUATE SIDE CLEARANCE PER NEC
- 25. MECHANICAL PLANS IN GENERAL, ARE DIAGRAMMATIC IN NATURE, AND ARE TO BE READ IN CONJUNCTION WITH ARCHITECTURAL, PLUMBING, ELECTRICAL, FIRE SPRINKLER, AND STRUCTURAL PLANS AND SHALL BE CONSIDERED AS ONE SET OF DOCUMENTS. DUCT AND PIPING OFFSETS, BENDS AND TRANSITIONS SHALL BE REQUIRED TO PROVIDE AND INSTALL A COMPLETE FUNCTIONAL SYSTEM AND SHALL BE PROVIDED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER. CHANGES IN DUCTWORK SIZE AND ROUTE WILL BE REQUIRED TO AVOID STRUCTURAL, PLUMBING, FIRE SPRINKLER AND ARCHITECTURAL BUILDING FEATURES. DUCTWORK CHANGES MAY BE MADE BY CONTRACTOR USING EQUIVALENT SIZED DUCT. CONTACT ENGINEER IF DUCT AREA WILL NOT FIT.
- 26. THE CONTRACTOR SHALL VERIFY EXISTING CONDITIONS PRIOR TO BIDDING, ORDERING, FABRICATION OR INSTALLATION OF MATERIALS OR EQUIPMENT. IN ORDER TO PROVIDE A FULLY INTEGRATED MECHANICAL AND CONTROLS SYSTEMS WITH THE EXISTING ONES. ANY DISCREPANCY BETWEEN EXISTING CONDITIONS AND PLANS, OR ADDITIONAL CLARIFICATION REQ'D SHALL BE BROUGHT TO THE ATTENTION OF ENGINEER PRIOR TO FINAL BIDDING AND WORK.
- 27. CONDENSATE DRAIN PIPING TO BE AS SPECIFIED PER PLUMBING PLANS. IF NOT SPECIFIED THEY SHALL BE TYPE "L" COPPER OR PVC WHERE ALLOWED BY CODE WITH INSULATION THICKNESS PER FEC 2014 TABLE C403.2.8. PROVIDE APPROVED WATER LEVEL DETECTOR OR FLOAT SWITCH TO AUTOMATICALLY SHUT DOWN THE AIR COND. UNIT, AS A SECONDARY DRAIN SYSTEM TO COMPLY WITH FMC 2014, SEC. 307 SUPPLY CONDENSATE PUMP WHERE NECESSARY AS IMPOSED BY FIELD CONDITIONS OR INSTALLATION CHANGES AND PIPE TO CONDENSATE DRAIN PER PLUMBING PLANS.
- 28. CLEARANCE FOR MAINTENANCE, SERVICE, REPAIRS, AND REPLACEMENT FOR ALL MECHANICAL EQUIPMENT SHALL BE PROVIDED TO COMPLY WITH FMC 2014, SEC. 306. SERVICE ACCESS PANELS FOR MECH. EQUIPMENT IN CONCEALED SPACES SHALL BE PROVIDED TO COMPLY WITH THE REQUIREMENTS OF SEC. 306.
- 29. MANUFACTURER'S WARRANTY: CONTRACTOR SHALL PROVIDE WARRANTY FOR A PERIOD OF (1) ONE YEAR AFTER BUILDING C.O. FOR ALL MECHANICAL SYSTEMS, DUCTWORK, CONTROLS ACCESSORIES AND ALL OTHER EQUIPMENT, PARTS AND LABOR UNDER THESE DRAWINGS AND AND SPECIFICATIONS. CONTRACTOR SHALL PROVIDE WARRANTY FOR COMPRESSORS FOR (5) FIVE YEARS. ANY REPAIRS REQUIRING SYSTEM SHUTDOWN WILL BE DONE DURING NON-OPERATIONAL PERIODS OR AS AGREED WITH OWNER.
- 30. CORROSION COATING: CONTRACTOR SHALL PROVIDE CORROSION COATING TO CONDENSER/EVAPORATOR COILS, EQUIPMENT CASINGS/CABINETS AND ALL EXPOSED COPPER PIPING/ COMPRESSORS/ CONDENSER SECTION, AS WELL AS, ANY EXPOSED METAL WITHIN AIRSTREAM BY 3RD PARTY AS APPLIED BY BLYGOLD, LUVATA, ADVANCOAT OR APPROVED EQUAL WITH STANDARD 5-YEAR
- COMMISSIONING: MECHANICAL SYSTEMS SHALL BE COMMISSIONED IN COMPLIANCE WITH FEC 2014, SEC. C408, WITH THE TWO LISTED EXCEPTIONS. THE OWNER/MECHANICAL CONTRACTOR SHALL PROVIDE TO THE E.O.R. DESIGN PROFESSIONAL ALL NECESSARY DOCUMENTATION REQUIRED BY THE BUILDING OFFICIAL PRIOR TO FINAL INSPECTION, PROVING EVIDENCE OF SYSTEMS COMMISSIONING PER SEC. C408.2.4 AND C408.2.5.
- a. A COMMISSIONING PLAN SHALL BE COMPLETED AND CERTIFIED BY A REGISTERED DESIGN PROFESSIONAL OR APPROVED AGENCY PER SEC. 408.2.1. b. A PRELIMINARY REPORT OF COMMISSIONING TEST PROCEDURES AND RESULTS SHALL BE COMPLETED AND CERTIFIED BY A REGISTERED DESIGN PROFESSIONAL OR APPROVED AGENCY AND PROVIDED TO THE BUILDING OWNER. THE REPORT SHALL BE IDENTIFIED AS "PRELIMINARY COMMISSIONING REPORT"
- PER SEC. C408.2.4. THE COMMISSIONING DOCUMENTS SHALL BE PROVIDED TO THE BUILDING OWNER WITHIN 90 DAYS OF THE DATE OF RECEIPT OF THE CERTIFICATE OF OCCUPANCY PER SEC. C408.2.5 AND SHALL INCLUDE: 1) DRAWINGS, 2) MANUALS, 3) SYSTEM BALANCING REPORT, AND 4) FINAL COMMISSIONING REPORT.

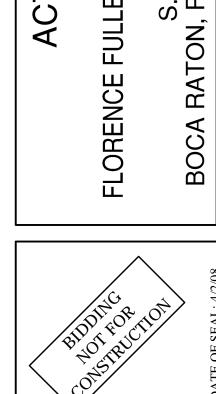
d. LIGHTING SYSTEM FUNCTIONAL TESTING: CONTROLS FOR AUTOMATIC LIGHTING SYSTEMS SHALL COMPLY

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M6.1	MECHANICAL SCHEDULES	
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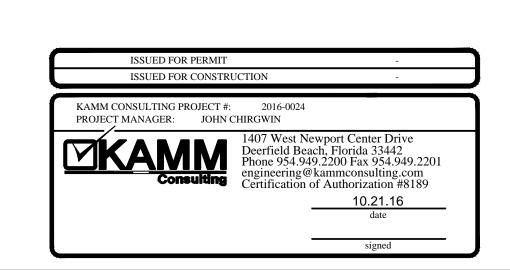


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